

Innovation results

AN R&D CASE STUDY

#022

Saving lives through early warning

Technology developed by UK scientists to detect kidney disease at an early stage could save lives and prevent thousands of people needing a transplant in the future.

The need

With increasing rates of diabetes and an ageing population, the number of patients with renal failure is rising. Many of them will end up on the transplant waiting list and today, nearly 7,000 people are waiting for a kidney.

Early intervention is crucial in treating kidney disease before renal failure occurs, but existing diagnostic tests are not sensitive enough, and by the time a diagnosis is made, it is often too late.

According to UK Transplant, 3% of the NHS budget is spent on kidney failure services which would have cost the NHS in England alone £2.7bn in 2007-08.

The results

What if there was a way to detect kidney injury before any damage is done and before costly treatment becomes inevitable? An ambitious and unique project undertaken by AstraZeneca UK in conjunction with Cardiff and Leeds universities may have found the answer.

With co-funding from the Technology Strategy Board, leading UK researchers have developed a set of biomarkers that could save lives and prevent many from joining the transplant waiting list.

Researchers have developed renal biomarkers in urine that can detect whether kidney damage is taking place much earlier than conventional tests.

These biomarkers can be used to diagnose disease or to ensure patient safety in novel drug development.

One biomarker has even been found to predict renal cancer survival. The biomarkers could also prove useful in predicting whether a patient with diabetes will go on to develop kidney failure – the most common reason for kidney transplantation.

The number of people needing such a transplant is expected to rise over the next decade due to an increase in diabetes, an ageing population and scientific advances resulting in more people being suitable for transplantation. This UK research, which is part of a global effort to find new kidney biomarkers, is now ready for clinical trial and the results could herald a new era in diagnosis of one of the UK's biggest health challenges.

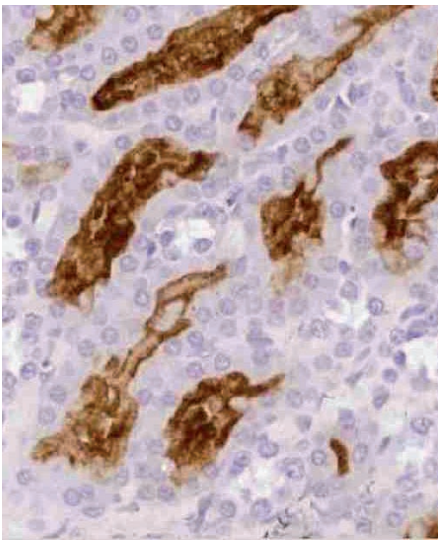
Next steps

UK scientists will now join a €25m consortium which will clinically validate the biomarkers they have developed in the laboratory. Large scale human studies will now take place over the next five years to see whether the biomarkers actually work in patients. If they prove effective, the consequences could dramatically change the way we treat kidney disease in the future and also reduce the financial burden it places on the NHS.



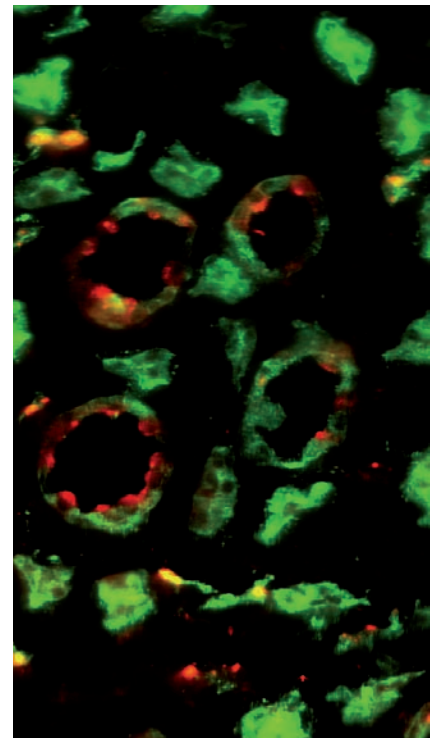
'Funding from the Technology Strategy Board has helped us to develop biomarkers which have a real chance of significantly reducing the mortality of patients with renal disease.'

MARK PINCHES, ASTRAZENECA UK.



The market

A number of the biomarkers developed in this project are now commercially viable, and as more clinical data becomes available and researchers explore their behaviour in novel applications, the market will grow dramatically. A test that is proven to predict diabetic progression to renal failure will be applied to 11.4 million patients every year in the US alone.



Technology Strategy Board

Driving Innovation

Collaborative research and development projects are one of the tools that the Technology Strategy Board uses to drive innovation in the UK. The Technology Strategy Board is a business-led executive non-departmental public

body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve the quality of life. It is sponsored by the Department for Business, Innovation and Skills (BIS).

Tel: 01793 442700 www.innovateuk.org

Project no. KO508E

Project partners

Astrazeneca UK, Cardiff
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Technology Strategy Board investment £151,000

Total project investment £914,0000

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